

## World Agriculture & Trade



Dennis Shields

### China's Fruit & Vegetable Sector: A Changing Market Environment

China's longstanding potential as a strong competitor in international fruit and vegetable trade will likely be realized over the next several years. Although China exports less than 1 percent of its fruit and vegetable production, private-sector investment—both domestic and foreign—is currently creating world-class operations that deliver high-quality fruits and vegetables to domestic and international markets.

Over the last two decades, domestic demand has absorbed most of China's gains in production—from 215 million metric tons in 1980 to over 460 million in 1999—as the country's population expands and overall income levels rise. Growth in domestic demand for fruits and vegetables, improvements in marketing practices, and China's future agricultural production policies will likely determine how soon and how strongly China's produce sector affects U.S. and world markets.

#### *Resource Mix & Climate Favor Fruit/Vegetable Production*

China's land base is relatively large, and harvested area of fruits and vegetables is about 22 million hectares, about 3 times the U.S. level. In the 1990s, harvested area increased by nearly one-third for

vegetables and nearly 50 percent for fruit. Some area was switched from grain (which makes up the bulk of total area), due in part to greater market incentives for vegetable and fruit production.

While other countries (e.g., the U.S., Australia, and Brazil) also have large land resources, few have an enormous labor supply available to produce and process labor-intensive crops like fruits and vegetables. Farmers and processors in China generally have little difficulty in filling their labor needs, even at a typical daily wage of 15 yuan (about \$2).

The topography and soil in many parts of the country, in addition to the abundance of labor, make further changes in cropping patterns advantageous. Sloped land currently under corn and other crop production, for example, may be more suited for labor-intensive fruit crops, a change that would likely result in greater control of soil erosion and more efficient use of limited water resources—two growing concerns in China.

China's diverse climate allows for a wide variety of fruit and vegetable production. In the south, a tropical climate supports production of bananas, citrus, and other tropical and semi-tropical fruits (papaya,

litchi, mango, and longan), as well as outdoor production of vegetables year-round. In the north, with its cold winters, deciduous fruits (e.g., apples, pears, and peaches) and greenhouse vegetables dominate. Seasonal vegetable production is significant in the middle and northern regions, where summer temperatures are moderate.

Rainfall across much of China depends on the monsoon, which moves northward in spring and summer. Annual rainfall in the southern half of the country is more than 600 millimeters (23.6 inches). The northern half receives less rainfall, particularly in the northwest with its high plateaus and deserts. Where rainfall is not sufficient, fruit and vegetable farmers irrigate by hand or with sprinkler systems.

Vegetable production (including melons) totaled 405 million tons in 1999. Leading vegetables include sweet potatoes, potatoes, cabbage, cucumbers, eggplant, peppers, onions, and lettuce each totaling at least 5 million tons. (About 40 percent of all potatoes is fed to livestock.) China is the world's largest producer of vegetables, with output about seven times the U.S. level. Per capita production is about one and one-half times the U.S. level.

Fruit production totaled 62 million tons in 1999. Major fruit types include apples (21 million tons), citrus (11 million), pears (8 million), bananas (4 million), and grapes (3 million). Key producing provinces include Shangdong in the east for apples, pears, and grapes, and Guangdong in the south for citrus and tropical fruits. China is also the world's leading fruit producer, with output about twice the U.S. level. Per capita production is about one-half the U.S. level.

#### *Government's Role Is Limited In Fruit & Vegetable Market*

China's fruit and vegetable sector has seen less government intervention over the last half century than other agricultural commodities, such as grains. As a result, fruit and vegetable marketing is more responsive to consumer demand. With the introduction of new varieties, production has grown substantially and product quality has improved.

## World Agriculture &amp; Trade

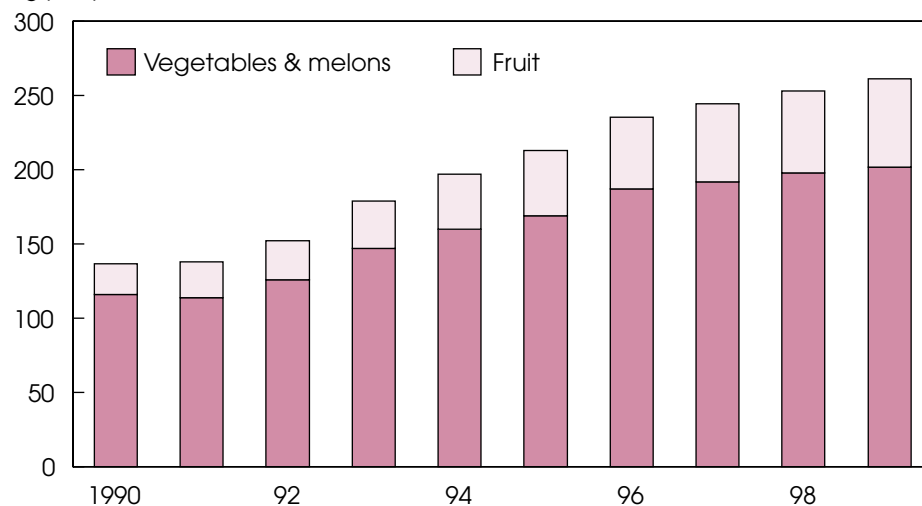
Prior to establishment of the People's Republic of China in 1949, vegetable producers were farm households who owned their own land or rented their land from local landlords. They produced for local market demand and for their own consumption. By 1958, most farms were organized into economic collectives (communes). State-organized production teams on the outskirts of cities supplied urban areas and prevailed until 1984.

In 1978, China decentralized the country's economic decisionmaking and allowed farmers to grow products for sale in the open market. Agricultural output increased dramatically and foreign investment rose. Nevertheless, production teams continued to produce vegetables for state-owned vegetable companies that managed the wholesale and retail activities to bring supplies to urban residents.

In 1984, communes were disbanded. Farm families and rural economic cooperatives raised vegetables for their own consumption and for direct marketing to urban consumers. Although urban vegetable firms continued to sign delivery contracts with village and township economic cooperatives, produce trade across provincial boundaries began. The number of rural open markets increased dramatically, and accounted for a growing share of the country's produce sales. Implementation of the land contract system (contracts between individuals and villages, which collectively own land) in the early 1980s gave households more freedom to decide which crops to plant. Increased planting flexibility and re-opening of local markets resulted in sharply higher fruit and vegetable plantings.

### China's Per Capita Fruit and Vegetable Production Rose During the 1990s

Kg per person



Vegetables exclude potatoes.

Source: Food and Agriculture Organization.

Economic Research Service, USDA

In the late 1980s, small urban centers, county seats, towns, and township centers relied on local open markets for vegetable supplies. Large and medium cities got vegetables through state-owned vegetable companies that contracted with counties, townships, and villages in suburban areas and through proliferating state-owned wholesale markets.

In 1988, China's Ministry of Agriculture and provincial/local agricultural bureaus began the Vegetable Basket Program, designed to address problems of food shortages and high food prices in the 1980s. The program established "production bases" around city suburbs and elsewhere around the country to capitalize on

regional advantages in soil and climate. These areas continue to receive special investment funds from the central government, with the program transferring new technology (e.g., seeds, greenhouses, and pest protection) to local farmers.

Also, over the last decade, the government has been instrumental in financing the construction of thousands of greenhouses around the country, with total area now estimated at 350,000 hectares. Many greenhouses are 3-sided concrete structures with plastic sheeting. Another 850,000 hectares are under "hoop" production—plastic sheeting supported by small hoops.

Today, supplies from across the country supplement locally produced vegetables in urban areas, providing year-round availability. During cool periods of the year in Beijing, for example, vegetable supplies are procured from three production bases: 1) west-central China (autumn vegetables), 2) North China Plain (greenhouse production in winter with low transport cost to Beijing), and 3) south (winter vegetables).

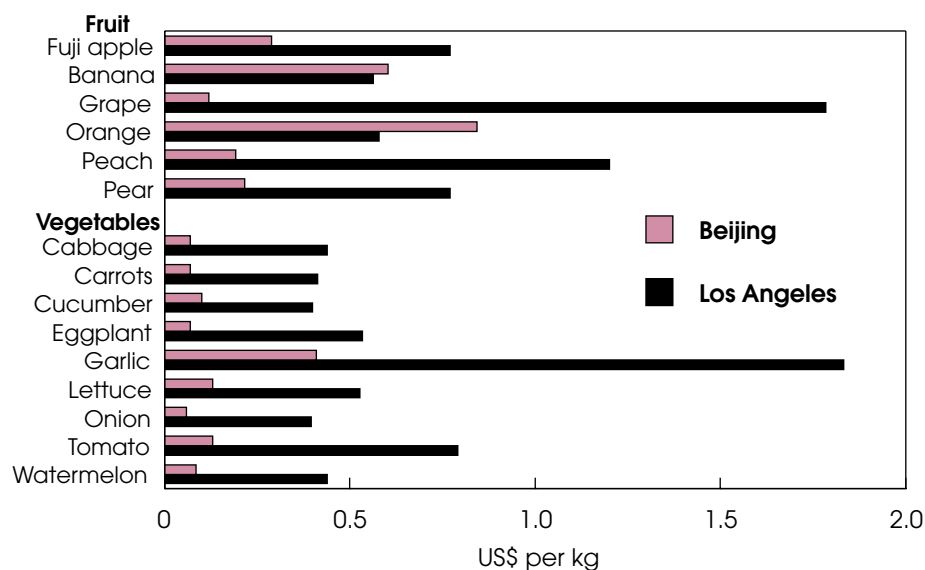
The Vegetable Basket Program also helped develop a network of wholesale markets, which increase farmers' opportu-

### WTO Membership for China Could Boost Imports from U.S.

China's expected accession to the World Trade Organization will reduce its import tariffs on a number of fruits, vegetables, and their products, including table grapes (from 40 percent ad valorem to 13 percent), oranges (40 percent to 12 percent), apples (30 percent to 10 percent), frozen potato fries (25 percent to 13 percent), and wine (65 percent to 20 percent). Lower tariffs will likely boost U.S. fruit and vegetable exports to China, especially for products experiencing recent demand growth (e.g., oranges and grapefruit). U.S. products, known for high quality, are already popular in China's hotel/restaurant trade as well as large-scale city supermarkets. WTO accession will also likely stimulate increased investment in the marketing system, reducing the risk of product loss before reaching retail markets for imports and domestic sales.

## World Agriculture & Trade

### Most Fruit and Vegetable Wholesale Prices in China Are Sharply Below U.S. Levels



Price levels indicate wholesale market conditions at the end of September 2000. Based on price data from USDA Agricultural Marketing Service and Beijing Urban and Rural Economic Information Center.

Economic Research Service, USDA

nities to generate cash. China's wholesale markets now number more than 4,000. Development of these markets has encouraged farmers to plant high-valued fruit and vegetables, which has raised income in rural areas and improved farmers' livelihoods. Since the late 1980s, farmers in some areas have been allowed to pay taxes in cash rather than in grain, reducing the incentive to plant grains.

Other government programs that have encouraged development of the fruit and vegetable sector include demonstration farms in major growing regions (and production bases) to introduce new varieties and offer extension services to area farmers. The government has developed transport systems (e.g., major roadways, expressways, and rail lines) to move products, including fruits and vegetables, from southern production bases to northern areas. A national fruit and vegetable market is gaining momentum now that growers around the nation can monitor daily market situations in many major wholesale markets with a fruit and vegetable price information system sponsored by the Ministry of Agriculture in cooperation with local agricultural bureaus.

### Sector Prospects Hinge on Marketing Practices

Long-term growth in China's production of fruits and vegetables and greater use of markets have coincided with expanding consumption, as measured by per capita production. Per capita production of fruit and vegetables (excluding potatoes) grew from 134 kg (298 pounds) in 1980 to nearly 250 kg (556 pounds) in 1999. (Per capita production, or availability, is used here as an indicator of the level of consumption, because trade is minimal and because methods for collecting and reporting household survey data have varied, making trend analysis problematic. Actual consumption is lower due to loss and waste.)

The wide selection of products enjoyed by consumers, especially city residents, throughout the year contrasts with the 1980s when a limited supply was available in the winter (often only cabbage and Irish potatoes). Other factors in the consumption increase include rising incomes and changes in diet. Inflation-adjusted income per urban resident increased nearly 30 percent from 1990 to 1999.

With abundant supplies of agricultural products in recent years, prices have been declining for many vegetables (e.g., carrots and garlic). This indicates that growth in demand is not keeping pace with output. Meanwhile, growing demand for high-quality produce (e.g., broccoli, navel oranges, and grapefruit) for the tourist/hotel trade is stimulating imports. Imports are creating a competitive market within China.

Over the next 5 years, supplies of some fruits and vegetables may continue to grow faster than demand if planting incentives remain favorable relative to other crops. Although fruit and vegetable prices have been declining, field crop prices have been under even greater pressure in recent years as domestic policies encouraged grain production. The field crop sector may be under additional price pressure from imports following China's expected accession to the World Trade Organization, which would prohibit subsidized grain exports and curb government policies that favor grain output.

China's fruit and vegetable export prospects are already bolstered by relatively low costs of production, which are reflected in wholesale prices. In Beijing, for example, wholesale prices for fruits and vegetables are only one-tenth to one-third the level of prices in other countries. Many private firms, including foreign investors who are taking advantage of China's low input costs (particularly labor), are expanding fruit and vegetable output and boosting overseas shipments. Total fresh vegetable exports were 1.3 million tons in 1999, up 11 percent from 1998. Fresh and dried fruit exports were 0.7 million, up 13 percent from 1998. Major destinations are Japan, Hong Kong, Russia, South Korea, and Singapore.

While additional gains in fruit and vegetable exports in China seem plausible, several factors will dampen prospective gains in the near term. First, China currently offers only a few varieties of fruits and vegetables in large volume for the export market. Second, the fruit and vegetable industry does not use grade standards (e.g., for uniform product size), although the Government is currently working with USDA's Agricultural Marketing Service to address this issue. Third,



## World Agriculture &amp; Trade

there is not widespread use of basic marketing practices such as modern packing and packaging techniques.

Finally, product promotion is very limited and not practical at the moment, given the current overall level of product quality (uniform size and appearance) for commercial sale. In many successful exporting countries, industry-sponsored organizations help coordinate promotional and informational efforts, but such activities are currently undertaken on a limited scale in China and only by individual exporters.

In short, most produce in China today is not export quality, and bringing it up to international standards would most likely significantly reduce the cost advantage at the farm level. However, for product grown in professionally managed operations, quality is already high and unit costs could decline as new technology (e.g., higher yielding varieties) is adopted.

To improve production and marketing practices, the Government now permits foreign trading and/or investing companies to work with farmers to grow and deliver vegetables that meet buyers' requirements, signing contracts for 2-3 years and supplying inputs such as appropriate seeds. For example, in 1999, an investor from Singapore built a large greenhouse/packing facility west of Qingdao (Shandong Province in eastern China) to ship products (spinach, lettuce, melons, and celery) to Japan and Singapore. The owner invested in China due in part to financial incentives from the local government (e.g., 2 years of tax-free operation), and is planning to expand and exploit favorable export prospects to other countries in Asia.

Another set of investors (also from Singapore) has planted 2,500 mu (167 ha) of Red Globe grapes in a new vineyard in Shangdong under a 15-year lease with a village north of Qingdao. The firm ships fresh-market grapes to Singapore, Malaysia, other parts of Asia, and Europe.

While China's production potential is impressive, an apparent dearth of high-quality supply of product for the domestic market may indicate that near-term prospects for large export volumes are limited. Consequently, domestic demand in high-income areas may be sufficient to absorb the supply of high-quality (i.e., export-quality) produce. For example, a pear producer in Shangdong sees large domestic demand potential for high-quality produce and plans to ship pears to Shanghai and Guangdong once harvest begins next year.

Nevertheless, China is making inroads in several markets traditionally dominated by the U.S. China produces a large volume of Fuji apples, which have become very competitive in the Hong Kong import market and pushed aside the previous market leader, Washington State Red Delicious. In Japan, U.S. broccoli now faces stiff competition from China.

Another issue affecting future sales is world price levels and the marketing window. It is likely that a large share of China's products would enter world markets at a time when competition from local and global producers is already intense, because harvesting seasons overlap for many producers in the Northern Hemisphere. Consequently, additional supplies in the world market, particularly during peak harvest periods, could result in very sharp price declines for all suppliers.

The evolving nature of post-harvest handling/packaging in China and future levels of foreign investment will likely play a large part in determining the country's future competitiveness in world fruit and vegetable markets. China could become very competitive and post large gains in overall export volumes once the country makes significant and widespread advances in marketing practices. **AO**

Dennis A. Shields (202) 694-5331 and  
Francis C. Tuan (202) 694-5238  
dshields@ers.usda.gov  
ftuan@ers.usda.gov

*This article is based on information gathered by a USDA team that visited China in November 2000.*

### Upcoming Reports—USDA's Economic Research Service

The following reports are issued electronically at 3 p.m. (ET) unless otherwise indicated.

#### June

- 1 Outlook for U.S. Agricultural Trade
- 12 World Agricultural Supply and Demand Estimates (8:30 a.m.)
- 13 Cotton and Wool Outlook (4 p.m.)\*\*  
Oil Crops Outlook (4 p.m.)\*\*  
Rice Outlook (4 p.m.)\*\*
- 14 Feed Outlook (9 a.m.)\*\*  
Wheat Outlook (9 a.m.)\*\*
- 26 Vegetables and Specialties Yearbook\*
- 27 Foreign Agricultural Trade of the United States (FATUS)/ U.S. Agricultural Trade Update  
Livestock, Dairy, and Poultry Situation and Outlook (4 p.m.)\*\*

\*Release of summary, 3 p.m.

\*\*Available electronically only

中国

## CONTINUING COVERAGE OF CHINA IN AGRICULTURAL OUTLOOK

### NEXT: CHINA'S GRAIN INDUSTRY— STRUCTURE AND PROSPECTS

VISIT THE CHINA BRIEFING ROOM ON THE ERS WEBSITE  
[WWW.ERS.USDA.GOV/BRIEFING/CHINA](http://WWW.ERS.USDA.GOV/BRIEFING/CHINA)